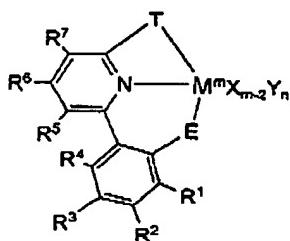


Application No.: 10/643,858Docket No.: V9661.0040**AMENDMENTS TO THE CLAIMS**

Please amend the claims as follows (deletions were stricken through; additions were underlined):

1. (Withdrawn) A catalyst of formula:



wherein:

R¹–R⁷ are each independently -H, -halo, -NO₂, -CN, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -N((C₁-C₃₀)hydrocarbyl)₂, -Si((C₁-C₃₀)hydrocarbyl)₃, -(C₁-C₃₀)heterohydrocarbyl, -aryl, or -heteroaryl, each of which may be unsubstituted or substituted with one or more -R⁸ groups; or two R¹–R⁷ may be joined to form cyclic group;

R⁸ is -halo, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -NO₂, -CN, -Si((C₁-C₃₀)hydrocarbyl)₃, -N((C₁-C₃₀)hydrocarbyl)₂, -(C₁-C₃₀)heterohydrocarbyl, -aryl, or -heteroaryl;

T is -CR⁹R¹⁰— wherein R⁹ and R¹⁰ are defined as for R¹ above;

E is a Group 16 element;

M is a metal selected from the group consisting of metallic Group 3-Group 10 elements and the Lanthanide series elements;

m is the oxidation state of the M;

X is R¹ excluding -H, wherein X is bonded to M;

Y is neutral ligand datively bound to M; and

n is an integer ranging from 0 to 5.

2. (Withdrawn) The catalyst of claim 1, wherein M is titanium, zirconium or hafnium.

3. (Withdrawn) The catalyst of claim 2, wherein X is halide, unsubstituted

Application No.: 10/643,858Docket No.: V9661.0040

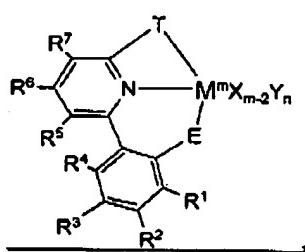
-(C₁-C₃₀)hydrocarbyl or substituted -(C₁-C₃₀)hydrocarbyl.

4. (Withdrawn) The catalyst of claim 3, wherein X is benzyl.

5. (Withdrawn) The catalyst of claim 2, wherein E is -O-.

6. (Currently Amended) An olefin polymerization catalyst system prepared from ~~the a catalyst of claim 1~~ and an activator,

wherein the catalyst is of formula:



wherein:

R¹-R⁷ are each independently -H, -halo, -NO₂, -CN, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -N((C₁-C₃₀)hydrocarbyl)₂, -Si((C₁-C₃₀)hydrocarbyl)₃, -(C₁-C₃₀)heterohydrocarbyl, -aryl, or -heteroaryl, each of which is unsubstituted or substituted with one or more -R⁸ groups; or two R¹-R⁷ is joined to form a cyclic group;

R⁸ is -halo, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -NO₂, -CN, -Si((C₁-C₃₀)hydrocarbyl)₃, -N((C₁-C₃₀)hydrocarbyl)₂, -(C₁-C₃₀)heterohydrocarbyl, -aryl, or -heteroaryl;

T is -CR⁹R¹⁰- where R⁹ and R¹⁰ are defined as for R¹ above;

E is a Group 16 element;

M is a metal selected from the group consisting of metallic Group 3-Group 10 elements and the Lanthanide series elements;

m is the oxidation state of the M;

X is R¹ excluding -H, wherein X is bonded to M;

Y is a neutral ligand dativebly bound to M; and

n is an integer ranging from 0 to 5.

Application No.: 10/643,858Docket No.: V9661.0040

7. (Currently Amended) The olefin polymerization catalyst of claim 6, wherein the activator is selected from the group consisting of trimethylaluminum, triethylaluminum, tri-isobutylaluminum, tri-n-octylaluminum, methylaluminum dichloride, ethylaluminum dichloride, dimethylaluminum chloride, diethylaluminum chloride, aluminoxanes, tetrakis(pentafluorophenyl)borate, dimethylphenylammonium tetra(pentafluorophenyl)borate, trityl tetra(pentafluorophenyl)borate, tris(pentafluorophenyl)boron, tris(pentabromophenyl)boron, and mixtures thereof.

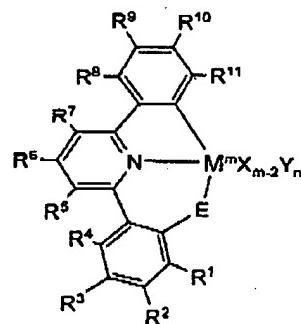
8. (Currently Amended) A method for polymerizing an olefin comprising contacting an olefin with the olefin polymerization catalyst system of claim 7 6.

9. (Original) The method of claim 8, wherein the olefin is ethylene, propylene, 1-butene, 2-pentene, 1-hexene, 1-octene, styrene, 1,3-butadiene, norbornene, each of which may be substituted or unsubstituted, or mixtures thereof.

10. (Original) The method of claim 9, wherein the olefin is ethylene or 1-hexene.

11. (Withdrawn) The method of claim 8, wherein at least one of R¹-R⁷ and R⁹-R¹⁰ is selected from the group consisting of -C(halide)₃, CH(halide)₂ and -CH₂(halide).

12. (Withdrawn) A catalyst of formula:



wherein

R¹-R¹¹ each independently -H, -halo, -NO₂, -CN, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -N((C₁-C₃₀)hydrocarbyl)₂, -Si((C₁-C₃₀)hydrocarbyl)₃,

Application No.: 10/643,858Docket No.: V9661.0040

- (C_1-C_{30}) heterohydrocarbyl, -aryl, -heteroaryl, each of which may be unsubstituted or substituted with one or more $-R^{12}$ groups; or two R^1-R^7 may be joined to form a cyclic group;

each R^{12} is independently -halo, $-NO_2$, $-CN$, $-(C_1-C_{30})$ hydrocarbyl, $-O(C_1-C_{30})$ hydrocarbyl, $-N((C_1-C_{30})$ hydrocarbyl) $_2$, $-Si((C_1-C_{30})$ hydrocarbyl) $_3$, $-(C_1-C_{30})$ heterohydrocarbyl, -aryl, or -heteroaryl;

E is a Group 16 element;

M is a metal selected from the group consisting of metallic Group 3 - Group 10 elements and the Lanthanide series elements;

m is the oxidation state of M ;

X is R^1 excluding -H, wherein X is bonded to M ;

Y is neutral ligand datively bound to M ; and

n is an integer ranging from 0 to 5.

13. (Withdrawn) The catalyst of claim 12, wherein M is titanium, zirconium or hafnium.

14. (Withdrawn) The catalyst of claim 13, wherein M is Ti or Zr; E is $-O^-$; m is 4; n is 0 or 1; and X is halo, $-(C_1-C_{30})$ hydrocarbyl or benzyl.

15. (Withdrawn) The catalyst of claim 13, wherein R^{11} is $-CF_3$.

16. (Withdrawn) The catalyst of claim 14, wherein M is Zr; R^1 and R^3 are $-C(CH_3)_3$; R^2 and R^4-R^{11} are -H; X is $-CH_2(C_6H_5)$; and n is 0.

17. (Withdrawn) The catalyst of claim 14, wherein M is Zr; R^1 and R^3 are $-C(CH_3)_3$; R^2 and R^4-R^{11} are -H; X is $-Cl$; n is 1; and Y is tetrahydrofuran.

18. (Withdrawn) The catalyst of claim 14, wherein M is Zr; R^1 and R^3 are $-C(CH_3)_3$; R^9 and R^{11} are $-CF_3$; R^2 , R^4-R^8 and R^{10} are -H; X is $-CH_2(C_6H_5)$; and n is 0.

19. (Withdrawn) The catalyst of claim 14, wherein M is Ti; R^1 and R^3 are $-C(CH_3)_3$; R^9 and R^{11} are $-CF_3$; R^2 , R^4-R^8 and R^{10} are -H; X is $-CH_2(C_6H_5)$; and n is 0.

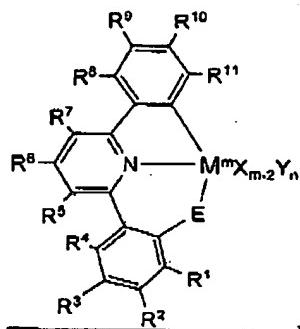
20. (Withdrawn) The catalyst of claim 14, wherein M is Zr; R^1 and R^3 are $-C(CH_3)_3$; R^9 is $-CF_3$; R^2 , R^4-R^8 and $R^{10}-R^{11}$ are -H; X is $-CH_2(C_6H_5)$; and n is 0.

Application No.: 10/643,858Docket No.: V9661.0040

21. (Withdrawn) The catalyst of claim 14, wherein M is Zr; R¹ and R³ are -C(CH₃)₃; R⁹ is -CF₃; R¹¹ is -F; R², R⁴-R⁸ and R¹⁰ are -H; X is -Cl; n is 1; and Y is tetrahydrofuran.

22. (Currently Amended) An olefin polymerization catalyst system prepared from the a catalyst of claim 12 and an activator,

wherein the catalyst is of formula:



wherein:

R¹-R¹¹ are each independently -H, -halo, -NO₂, -CN, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -N((C₁-C₃₀)hydrocarbyl)₂, -Si((C₁-C₃₀)hydrocarbyl)₃, -(C₁-C₃₀)heterohydrocarbyl, -aryl, -heteroaryl, each of which is unsubstituted or substituted with one or more -R¹² groups; or two R¹-R⁷ is joined to form a cyclic group; each R¹² is independently -halo, -NO₂, -CN, -(C₁-C₃₀)hydrocarbyl, -O(C₁-C₃₀)hydrocarbyl, -N((C₁-C₃₀)hydrocarbyl)₂, -Si((C₁-C₃₀)hydrocarbyl)₃, -(C₁-C₃₀)heterohydrocarbyl, -aryl, or -heteroaryl;

E is a Group 16 element;

M is a metal selected from the group consisting of metallic Group 3-Group 10 elements and the Lanthanide series elements;

m is the oxidation state of M;

X is R¹ excluding -H, wherein X is bonded to M;

Y is a neutral ligand datively bound to M; and

n is an integer ranging from 0 to 5.

Application No.: 10/643,858Docket No.: V9661.0040

23. (Currently Amended) The olefin polymerization catalyst system of claim 22, wherein the activator is selected from the group consisting of trimethylaluminum, triethylaluminum, tri-isobutylaluminum, tri-n-octylaluminum, methylaluminum dichloride, ethylaluminum dichloride, dimethylaluminum chloride, diethylaluminum chloride, aluminoxanes, tetrakis(pentafluorophenyl)borate, dimethylphenylammonium tetra(pentafluorophenyl)borate, trityl tetra(pentafluorophenyl)borate, tris(pentafluorophenyl)boron, tris(pentabromophenyl)boron, and mixtures thereof.

24. (Currently Amended) A method for polymerizing an olefin comprising contacting an olefin with the olefin polymerization catalyst system of claim 23 22.

25. (Original) The method of claim 24, wherein the olefin is ethylene, propylene, 1-butene, 2-pentene, 1-hexene, 1-octene, styrene, 1,3-butadiene, norbornene, each of which may be substituted or unsubstituted, or mixtures thereof.

26. (Original) The method of claim 25, wherein the olefin is ethylene or 1-hexene.

27. (Withdrawn) The method of claim 24, wherein at least one of R¹-R¹¹ is selected from the group consisting of -C(halide)₃, CH(halide)₂ and -CH₂(halide).

28. (New) The olefin polymerization catalyst system of claim 6, wherein M is titanium, zirconium or hafnium.

29. (New) The olefin polymerization catalyst system of claim 6, wherein X is halide, unsubstituted -(C₁-C₃₀)hydrocarbyl or substituted -(C₁-C₃₀)hydrocarbyl.

30. (New) The olefin polymerization catalyst system of claim 6, wherein X is benzyl.

31. (New) The olefin polymerization catalyst system of claim 6, wherein E is -O-.

32. (New) The olefin polymerization catalyst system of claim 22, wherein M is titanium, zirconium or hafnium.

Application No.: 10/643,858Docket No.: V9661.0040

33. (New) The olefin polymerization catalyst system of claim 22, wherein M is Ti or Zr; E is -O-; m is 4; n is 0 or 1; and X is halo, -(C₁-C₃₀)hydrocarbyl or benzyl.

34. (New) The olefin polymerization catalyst system of claim 22, wherein R¹¹ is -CF₃.

35. (New) The olefin polymerization catalyst system of claim 22, wherein M is Zr; R¹ and R³ are -C(CH₃)₃; R² and R⁴-R¹¹ are -H; X is -CH₂(C₆H₅); and n is 0.

36. (New) The olefin polymerization catalyst system of claim 22, wherein M is Zr; R¹ and R³ are -C(CH₃)₃; R² and R⁴-R¹¹ are -H; X is -Cl; n is 1; and Y is -tetrahydrofuran.

37. (New) The olefin polymerization catalyst system of claim 22, wherein M is Zr; R¹ and R³ are -C(CH₃)₃; R⁹ and R¹¹ are -CF₃; R², R⁴-R⁸ and R¹⁰ are -H; X is -CH₂(C₆H₅); and n is 0.

38. (New) The olefin polymerization catalyst system of claim 22, wherein M is Ti; R¹ and R³ are -C(CH₃)₃; R⁹ and R¹¹ are -CF₃; R², R⁴-R⁸ and R¹⁰ are -H; X is -CH₂(C₆H₅); and n is 0.

39. (New) The olefin polymerization catalyst system of claim 22, wherein M is Zr; R¹ and R³ are -C(CH₃)₃; R⁹ is -CF₃; R², R⁴-R⁸ and R¹⁰-R¹¹ are -H; X is -CH₂(C₆H₅); and n is 0.

40. (New) The olefin polymerization catalyst system of claim 22, wherein M is Zr; R¹ and R³ are -C(CH₃)₃; R⁹ is -CF₃; R¹¹ is -F; R², R⁴-R⁸ and R¹⁰ are -H; X is -Cl; n is 1; and Y is tetrahydrofuran.

41. (New) The olefin polymerization catalyst system of claim 6, wherein at least one of R¹-R⁷ and R⁹-R¹⁰ is selected from the group consisting of -C(halide)₃, CH(halide)₂ and -CH₂(halide).

42. (New) The olefin polymerization catalyst system of claim 22, wherein at least one of R¹-R¹¹ is selected from the group consisting of -C(halide)₃, CH(halide)₂ and -CH₂(halide).